

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/CH2004/000410

A. CLASSIFICATION OF SUBJECT MATTER		
IPC 7 F16H33/02 F16F15/30 H02K7/02 H02K49/10		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
IPC 7 F16H F16F F16D H02K		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the International search (name of data base and, where practical, search terms used)		
EPO-Internal, WPI Data, PAJ		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02/41477 A (SCHROETTER JOHNNES ; PLANETENERGY LTD. (LI)) 23 May 2002 (2002-05-23) the whole document	1
A	EP 0 683 317 A (TAKARA MUNAEKI) 22 November 1995 (1995-11-22) column 30, line 26 – column 31, line 6; figure 28	1
A	GB 845 654 A (ALBERT VICTOR CLARKE) 24 August 1960 (1960-08-24) the whole document	1
<input type="checkbox"/> Further documents are listed in the continuation of box C.		<input checked="" type="checkbox"/> Patent family members are listed in annex.
<p>* Special categories of cited documents :</p> <p>'A' document defining the general state of the art which is not considered to be of particular relevance</p> <p>'E' earlier document but published on or after the International filing date</p> <p>'L' document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>'O' document referring to an oral disclosure, use, exhibition or other means</p> <p>'P' document published prior to the International filing date but later than the priority date claimed</p> <p>'T' later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>'X' document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>'Y' document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>'&amp;' document member of the same patent family</p>		
Date of the actual completion of the International search	Date of mailing of the International search report	
14 October 2004	03/11/2004	
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patenlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016	Authorized officer  Foulger, M	

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No	
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Patent document cited in search report	Publication date		Patent family member(s)		Publication date
WO 0241477	A 23-05-2002		AU 1515002 A CA 2428419 A1 CN 1475042 T EP 1340309 A1 WO 0241477 A1 JP 2004523696 T US 2004046468 A1		27-05-2002 23-05-2002 11-02-2004 03-09-2003 23-05-2002 05-08-2004 11-03-2004
EP 0683317	A 22-11-1995		JP 5209586 A JP 5340340 A CA 2120757 A1 DE 69224398 D1 DE 69224398 T2 EP 0683317 A1 US 5590568 A WO 9307387 A1		20-08-1993 21-12-1993 15-04-1993 12-03-1998 20-05-1998 22-11-1995 07-01-1997 15-04-1993
GB 845654	A 24-08-1960		NONE		

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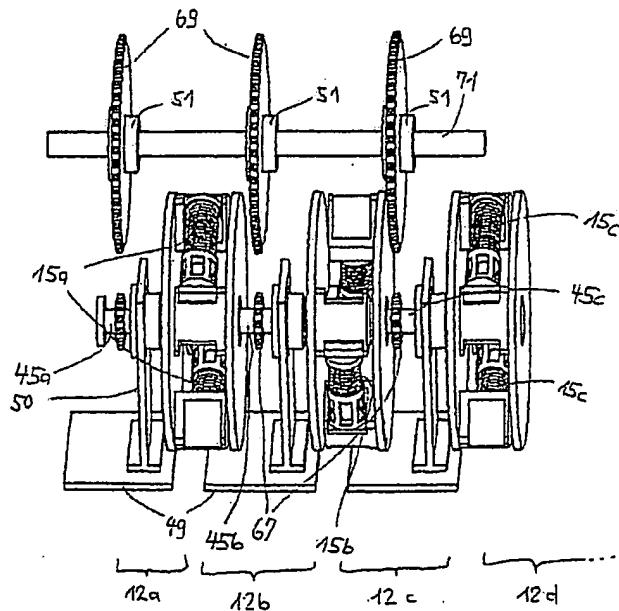
(10) Internationale Veröffentlichungsnummer  
**WO 2005/001310 A1**

- (51) Internationale Patentklassifikation<sup>7</sup>: F16H 33/02, F16P 15/30, F16D 5/00
- (72) Erfinder; und
- (75) Erfinder/Anmelder (nur für US): SCHROETTER, Johannes [LI/LT]; c/o Planetenergy Limited, Städle 28, FL-9490 Vaduz (LI).
- (21) Internationales Aktenzeichen: PCT/CH2004/000409
- (22) Internationales Anmeldedatum: 30. Juni 2004 (30.06.2004)
- (24) Anwälte: HASLER, Erich usw.; Riederer Hasler & Partner Patentanwälte AG, Elestustrasse 8, CH-7310 Bad Ragaz (DE).
- (25) Einreichungssprache: Deutsch
- (26) Veröffentlichungssprache: Deutsch
- (30) Angaben zur Priorität:  
1146/03 30. Juni 2003 (30.06.2003) CH  
1555/03 12. September 2003 (12.09.2003) CH
- (81) Bestimmungsstaaten (soweit nicht anders angegeben, für jede verfügbare nationale Schutzrechtsart): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
- (71) Anmelder (für alle Bestimmungsstaaten mit Ausnahme von US): PLANETENERGY LIMITED [LI/LT]; Städle 28, FL-9490 Vaduz (LI).

[Fortsetzung auf der nächsten Seite]

(54) Titel: METHOD AND DEVICE FOR THE MECHANICAL TRANSMISSION OF FORCE

(54) Bezeichnung: VERFAHREN UND VORRICHTUNG ZUR MECHANISCHEN KRAFTÜBERTRAGUNG



(57) Abstract: The invention relates to a method and a device for transmitting force by means of spring interaction. According to the invention, a plurality of supports (11) are provided for receiving or positioning one or several springs (15), shock absorbers, or similar, each support being disposed on bearing means. Each support is connected to one or several freewheeling means, e.g. freewheel bearings, such that each support is rotatably or movably guided in a single direction about an axis of rotation or along a straight or curved axis of translation. Furthermore, each support is fitted with one or several individual springs, shock absorbers, or similar in a predefined arrangement. A plurality of such supports are positioned at a distance from each other in such a way that a momentum transmitted to a first support is transmitted by said first support to an adjacent second support by means of spring interaction, is transmitted by said second support to the third support that adjoins the second support, etc. An essential characteristic of the invention lies in the fact that virtually the entire momentum is transmitted to the next closest respective

support as a support that has been set in motion is prevented by the freewheeling means from travelling in the reverse direction such that an initial momentum that is transmitted once from an external source of momentum to the mechanical force-transmitting device can be transmitted practically free of loss across long distances similar to a wave. The momentum can be maintained for an extended period of time at low frictional resistance if the path of travel is closed, e.g. in a circle.

[Fortsetzung auf der nächsten Seite]

**WO 2005/001310 A1**



TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

- (84) Bestimmungsländer (soweit nicht anders angegeben, für jede verfügbare regionale Schutzrechtsart): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), eurasisches (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), europäisches (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT,

Veröffentlicht:

— mit internationalem Recherchenbericht

Zur Erklärung der Zweibuchstaben-Codes und der anderen Abkürzungen wird auf die Erklärungen ("Guidance Notes on Codes and Abbreviations") am Anfang jeder regulären Ausgabe der PCT-Gazette verwiesen.

- (57) Zusammenfassung: Die vorliegende Erfindung betrifft ein Verfahren und eine Vorrichtung zur Kraftübertragung mittels Feder-Wechselwirkung. Dabei wird eine Mehrzahl von Supports (11) zur Aufnahme oder Anordnung von einer oder mehreren Federn (15), Stossdämpfern oder dergleichen vorgesehen und jeder Support auf Lagermitteln angeordnet. Jeder Support steht mit einem oder mehreren Freilaufmitteln, z.B. Freilauflagern, in Verbindung, sodass jeder Support um eine Drehachse oder entlang einer geraden oder gekrümmten Translationsachse in nur einer Richtung dreh- resp. beweglich geführt wird. Außerdem wird jeder Support mit jeweils einem oder mehreren einzelnen Federn, Stossdämpfern oder dergleichen in einer vorbestimmen Anordnung bestückt. Eine Mehrzahl derartiger Supports wird in Abstand so relativ zueinander angeordnet, dass ein auf einen ersten Support übertragener Impuls von diesem ersten Support mittels Federwechselwirkung auf einen benachbarten zweiten Support, von diesem zweiten Support auf den zum zweiten Support benachbarten dritten Support usw. übertragen wird. Wesentlich dabei ist, dass durch den durch die eingesetzten Freilaufmittel verunmöglichten Rücklauf eines in Bewegung gesetzten Supports eine praktisch vollständige Impulsübertragung auf den jeweils nächsten Support bewirkt wird, sodass ein von einem externen Impulsgeber einmal auf die mechanische Kraftübertragungsvorrichtung übertragener Startimpuls ähnlich einer Welle praktisch verlustfrei über grosse Strecken übertragbar ist. Ist die Strecke in sich geschlossen, z.B. ein Kreis, so kann der Impuls bei nur geringem Reibwiderstand über längere Zeit erhalten bleiben.

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A. CLASSIFICATION OF SUBJECT MATTER  
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## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 F16H F16F F16D

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/41477 A (SCHROETTER JOHNNES ; PLANETENERGY LTD (LI)) 23 May 2002 (2002-05-23) page 11, paragraph 4; claims; figures	1-30
X	EP 0 683 317 A (TAKARA MUNEAKI) 22 November 1995 (1995-11-22) column 30, line 15 – line 25	1,9
A	SU 934 087 A (IGNATKIN VLADIMIR) 7 June 1982 (1982-06-07) figure	1,9
A	-& DATABASE WPI Derwent Publications Ltd., London, GB; AN 1983-F3070K XP000069471 abstract	1,9
	-----	-/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the International filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
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\*T\* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

\*Z\* document member of the same patent family

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22/10/2004

Name and mailing address of the ISA

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 1 493 232 A (BARTON FREDERICK C) 6 May 1924 (1924-05-06) page 2, line 38 - line 50	1,9
A	US 1 371 023 A (EDWARDS) 8 March 1921 (1921-03-08) figure 11	1,9
A	DE 425 244 C (JOSEF KUHNEN) 13 February 1926 (1926-02-13) figures 2,4	1,9

**INTERNATIONAL SEARCH REPORT**

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PCT/CH2004/000409	

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 0241477	A 23-05-2002	AU 1515002 A CA 2428419 A1 CN 1475042 T EP 1340309 A1 WO 0241477 A1 JP 2004523696 T US 2004046468 A1		27-05-2002 23-05-2002 11-02-2004 03-09-2003 23-05-2002 05-08-2004 11-03-2004
EP 0683317	A 22-11-1995	JP 5209586 A JP 5340340 A CA 2120757 A1 DE 69224398 D1 DE 69224398 T2 EP 0683317 A1 US 5590568 A WO 9307387 A1		20-08-1993 21-12-1993 15-04-1993 12-03-1998 20-05-1998 22-11-1995 07-01-1997 15-04-1993
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US 1493232	A 06-05-1924	NONE		
US 1371023	A 08-03-1921	NONE		
DE 425244	C 13-02-1926	NONE		